What is claimed is:

1. A method of winding a web around a core at a high speed, comprising the steps of:

winding the web to a given length around the core under a low tension, then progressively increasing the tension of the web at a predetermined rate until reaching a high tension, and thereafter winding the web under a tension which is being reduced from the high tension.

2. A method according to claim 1, wherein said given length to which the web is wound around the core under the low tension is longer if the core is longer and shorter if the core is shorter.

3. A method according to claim 1, wherein said given length to which the web is wound around the core under the low tension is set to a value up to 15 % of the length to which the web is to be wound.

4. A method of winding a web around a core at a high speed, comprising the steps of:

winding the web to a given length, which corresponds to the length of the core, around the core under a low tension, then increasing the tension of the web to a high tension, and thereafter winding the web under a tension which is being reduced from the high tension.

5. A method according to claim 4, wherein said given length to which the web is wound around the core under the low tension is longer if the core is longer and shorter if the core is shorter.

6. A method according to claim 4, wherein said given length to which the web is wound around the core under the low tension is set to a value up to 15 % of the length to which the web is to be wound.

7. A method of winding a web, comprising the steps of:

supporting the web on an outer circumferential surface of a core with a plurality of rollers, and rotating the core with a gap being defined by blocks between the blocks and the outer circumferential surface of the core for passage of the web therethrough;

retracting said rollers and said blocks from the core successively from regions where a leading end of the web has passed; and

after the web is wound around the core by at least one turn, retracting all the said rollers and said blocks from the core.

8. A method according to claim 7, wherein a time to move said rollers and said blocks is determined based on an output signal from an encoder which is associated with a

reference roller for feeding said web.

9. An apparatus for winding a web around a core at a high speed, comprising:

winding tension storing means for storing a winding tension corresponding to the length to which the web is wound around the core;

torque converting means for reading said winding tension from said winding tension storing means and converting the read winding tension into a winding torque; and

core rotation control means for controlling rotation of the core according to said winding torque;

said winding tension being set so as to wind the web to a given length around the core under a low tension, then progressively increase the tension of the web at a predetermined rate until reaching a high tension, and thereafter wind the web under a tension which is being reduced from the high tension.

10. An apparatus according to claim 9, for simultaneously winding a plurality of webs obtained by cutting a web around respective cores, wherein said winding tension storing means comprises means for storing winding tensions of the respective webs, and said core rotation control means comprises means for independently controlling rotation of the cores respectively according to said winding

torques corresponding to said winding tensions.

11. An apparatus for winding a web around a core at a high speed, comprising:

winding tension storing means for storing a winding tension corresponding to the length to which the web is wound around the core;

torque converting means for reading said winding tension from said winding tension storing means and converting the read winding tension into a winding torque; and

core rotation control means for controlling rotation of the core according to said winding torque;

said winding tension being set so as to wind the web to a given length, which corresponds to the length of the core, around the core under a low tension, then increase the tension of the web to a high tension, and thereafter wind the web under a tension which is being reduced from the high tension.

12. An apparatus according to claim 11, for simultaneously winding a plurality of webs obtained by cutting a web around respective cores, wherein said winding tension storing means comprises means for storing winding tensions of the respective webs, and said core rotation control means comprises means for independently controlling rotation of the cores respectively according to said winding

torques corresponding to said winding tensions.

13. An apparatus for winding a web around a core, comprising:

a core rotating mechanism for rotating the core; and

a winding mechanism for guiding the web around the core when the core is rotated;

said winding mechanism comprising:

a movable pressing roller for pressing the web against the core to support the web thereon and for being pressed against the core in a direction opposite to the direction in which the tension of at least the web is applied; and

a plurality of movable blocks for creating a gap for passage of the web between the movable blocks and an outer circumferential surface of the core.

14. An apparatus according to claim 13, wherein said pressing roller includes first and second pressing rollers symmetrically positioned with respect to a hypothetical reference line which extends parallel to the direction indicated in which the tension of the webs is applied and also extends through centers of the cores, said first and second pressing rollers being rotatably mounted on one of said blocks.

15. An apparatus according to claim 14, wherein said

block on which said first and second pressing rollers are rotatably mounted is movable toward and away from the core by an actuator with a pressing force adjusting function.

16. An apparatus according to claim 14, wherein said winding mechanism comprises:

a bearing roller for engaging the core in opposite relation to said first and second pressing rollers; and

a third pressing roller and a winding nip roller which are disposed on a hypothetical line which extends across said hypothetical reference line and also extends through centers of the core, and which are disposed in sandwiching relation to the core, said third pressing roller and said winding nip roller being movable toward and away from each other.

17. An apparatus according to claim 13, wherein said winding mechanism comprises a plurality of winding mechanisms arrayed axially of the core, with only a predetermined number of winding mechanisms, depending on the axial length of the core, among said plurality of winding mechanisms being disposed in a position to wind the web.